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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/633,886

08/04/2003

Charles H. Dennison

ITO.0544US (P15589)

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11/17/2004

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EXAMINER

LOKE, STEVEN HO YIN

ART UNIT

PAPER NUMBER

2811

DATE MAILED: 11/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/633,886

Applicant(s)

DENNISON, CHARLES H.

Examiner

Steven Loke

Art Unit

2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4-6,8,11-21,24-26,28 and 29 is/are rejected.
- 7) ☒ Claim(s) 2,3,7,9,10,22,23 and 27 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 11/3/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

1. Applicant's election without traverse of claims 1-29 in the reply filed on 9/13/04 is acknowledged.

2. The disclosure is objected to because of the following informalities: It is unclear why reference numeral 12 is being referred to "rows" (page 4, line 14) and to "switch" (page 4, lines 18-19).

Appropriate correction is required.

3. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: "said pore having a sidewall spacer in said aperture" in claim 25.

4. Claims 13 and 18 are objected to because of the following informalities: Claim 13, line 2, the phrase "said upper electrodes" has no antecedent basis. Claim 18, line 2, the phrase "said grooves" has no antecedent basis. Appropriate correction is required.

5. Claims 4-6, 8, 11-20, 24-26 and 28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4, line 2, claim 24, lines 2-3, the phrase "available lithographic techniques" is unclear as to what lithographic techniques it is being referred to.

Claim 11, line 1, the word "cells" is unclear whether it is being referred to "memory cells".

Claim 13, line 2, the phrase "said upper electrodes" is unclear as to where are the upper electrodes being formed in the memory.

Claim 8, lines 1-2, it is unclear as to where is the upper electrode being formed in the memory.

Claim 28, lines 1-2, it is unclear as to where is the upper electrode being formed in the apparatus.

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1, 21 and 29 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Lazaroff et al.

In regards to claim 1, Lazaroff et al. show all the elements of the claimed invention in figs. 2-14. It is a method, comprising: forming a damascene via [70] to a conductive line [90] in the periphery of a phase change memory [24] (paragraphs [0016] to [0018]).

In regards to claim 21, Lazaroff et al. show all the elements of the claimed invention in fig. 1. It is an apparatus, comprising: a phase change material [24]; a conductive line [90] coupled to said phase change material; and a damascene via [70] to said conductive line.

In regards to claim 29, Lazaroff et al. further disclose said damascene via [70] includes a metal line [70] extending through a portion of an insulator [50].

8. Claims 21 and 29 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Chiang et al. (U.S. patent no. 6,569,705).

In regards to claim 21, Chiang et al. show all the elements of the claimed invention in fig. 15. It is an apparatus, comprising: a phase change material [290]; a conductive line [140] coupled to said phase change material; and a via [340, 350] to said conductive line.

The process limitation of how a via is formed has no patentable weight in claim drawn to structure. Note that a "product by process" claim is directed to the product per se, no matter how actually made, In re Hirao, 190 USPQ 15 at 17 (footnote 3). See also In re Brown, 173 USPQ 685; In re Luck, 177 USPQ 523; In re Fessmann, 180 USPQ 324; In re Avery, 186 USPQ 161; In re Wertheim, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); and In re Marosi et al, 218 USPQ 289, all of which make it clear that it is the patentability of the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that an old or obvious product by a new method is not patentable as a product, whether claimed in "product by process" claims or not. Note that applicant has the burden of proof in such cases, as the above caselaw makes clear.

Thus, the term "damascene" is thus non-limiting.

In regards to claim 29, Chiang et al. further disclose said via [340, 350] includes a metal line [340, 350] extending through a portion of an insulator [210].

9. Claims 2 and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter: The first major difference in the claims not found in the prior art of record is the method including forming a phase change threshold switch. The second major difference in the claims not found in the prior art of record is the memory includes a phase change threshold switch.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven Loke whose telephone number is (571) 272-1657. The examiner can normally be reached on 7:50 am to 5:20 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lee can be reached on (571) 272-1732. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

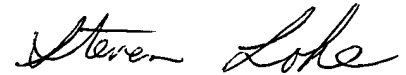
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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November 14, 2004

Steven Loko  
Primary Examiner

A handwritten signature in cursive script that reads "Steven Loko". The signature is written in black ink and is positioned below the printed name and title.